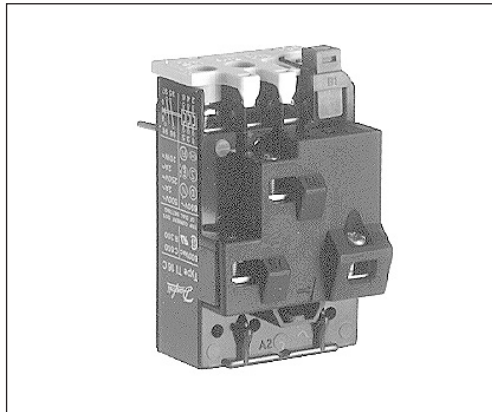


Description


Thermal overload relays TI 16C, TI 25C and TI 30C are used with contactors CI 6-30 to give protection of squirrel-cage motors of 0.09 kW to 15 kW.

The relays have single-phase protection, i.e. accelerated release if phase drop-out occurs. This is particularly important for motors with delta-connected windings.

Other features of TI 16C/25C/30C:

- stop/reset button
- manual/automatic reset
- test button
- double scale for direct start or Y/D start
- galvanically isolated signal contact

Ordering
Thermal overload relays
TI 16C, TI 25C, TI 30C for contactors CI 6-30

Range		Max. fuse ¹⁾				HRC ²⁾ II	Code no.	Type
Motor-starter A	Y/D-starter A	gl, gL, gG		BS 88, type T				
		type 1 A	type 2 A	type 1 A	type 2 A	A		
0.13 - 0.20	-	25	-	32	-	1	047H0200	TI 16C
0.19 - 0.29	-	25	-	32	2	1	047H0201	
0.27 - 0.42	-	25	2	32	2	1	047H0202	
0.4 - 0.62	-	25	2	32	4	1	047H0203	
0.6 - 0.92	-	25	4	32	6	3	047H0204	
0.85 - 1.3	-	25	4	32	6	3	047H0205	
1.2 - 1.9	-	25	6	32	10	6	047H0206	
1.8 - 2.8	3.2 - 4.8	25	6	32	10	15	047H0207	
2.7 - 4.2	4.7 - 7.3	25	16	32	20	15	047H0208	
4.0 - 6.2	6.9 - 10.7	35	20	40	25	15	047H0209	
6.0 - 9.2	10 - 16	50	20	50	25	35	047H0210	
8.0 - 12	13 - 20.8	63	25	63	32	35	047H0211	
11 - 16	19 - 27	80	25	80	32	50	047H0212	
15 - 20	26 - 35	80	35 ³⁾	80	40	60	047H0213	TI 25C
19 - 25	33 - 43	80	63	80	63	60	047H0214	
24 - 32	41 - 55	80	63	80	63	60	047H0215	TI 30C

¹⁾ To IEC 947-4 coordination types 1 and 2:

Coordination type 1: Any type of damage to the motor starter is permissible. If the motor starter is in an enclosure, no external damage to the enclosure is permissible. After a short-circuit the thermal overload relay shall be partially or wholly replaced.
Coordination type 2: No damage to the motor starter is permissible, but slight contact burning and welding is permissible.

²⁾ In accordance with HRC form II, TI 16C, TI 25C and TI 30C are suitable for operation in Canada and the USA.

³⁾ 50 A in Norway.

Selection of thermal overload relay

The selection of a thermal overload relay must be based on the motor full load current and the method of starting:

- With direct start the range for motor starter is used.
- With star-delta start the range for Y/D starter is used.

Example:

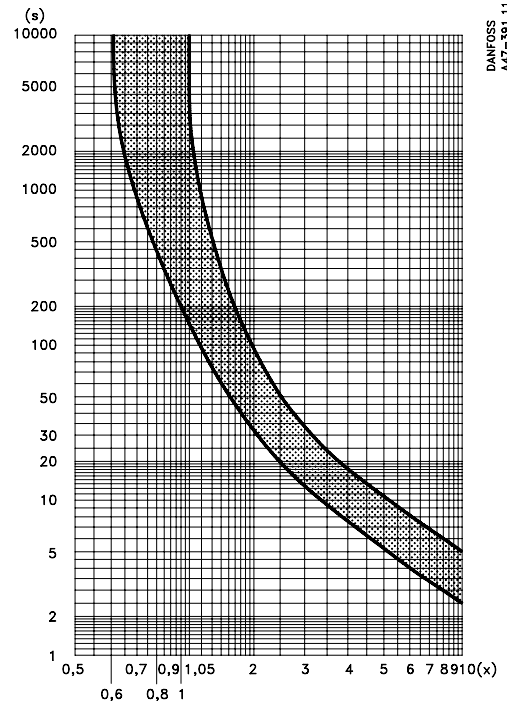
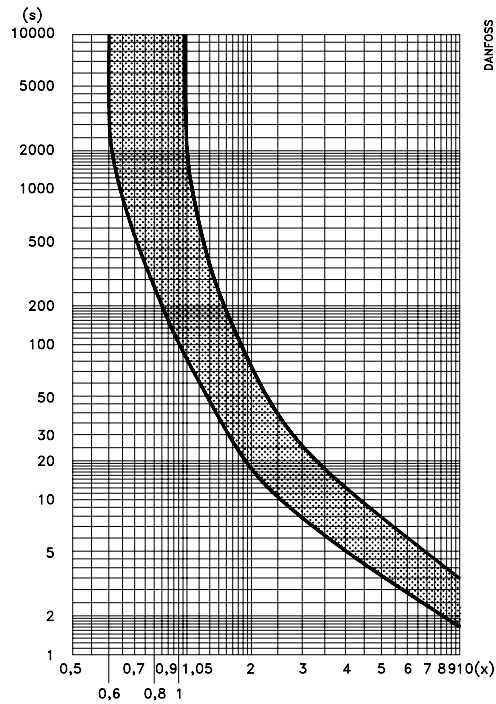
Full load current: 16 A

- With direct start, the suitable motor starter range is 11-16 A, i.e. thermal overload relay **047H0212**.
- With star-delta start, the suitable Y/D starter range is 10-16 A, i.e. thermal overload relay **047H0210**.

The range 13-20.8 A could also be used, but thermal overload relay 047H0211 will not release as quickly if one phase drops out.

Tripping graphs

TI16C, TI 25C, TI 30C


Explanation of graphs

Mean value curves

Upper curve: 3-phase tripping and asymmetric load tripping at min. setting.

Lower curve: Asymmetric load tripping at max. setting.

When tripping from the operationally warm condition, the tripping times are approx. 30% of the values shown. These values apply at an ambient temperature = 20°C.

$$\text{3-phase tripping: } x = \frac{\text{measured current}}{\text{rated motor current}}$$

$$\text{Asymmetric load tripping: } x = \frac{\text{measured current}}{\text{max. scale value on overload relay}}$$

 Tripping time $2 < T_p \leq 10$ s at $7.2 \times I_e$ class 10 A

Note! In general, the thermal overload relay is always set on motor full load current.

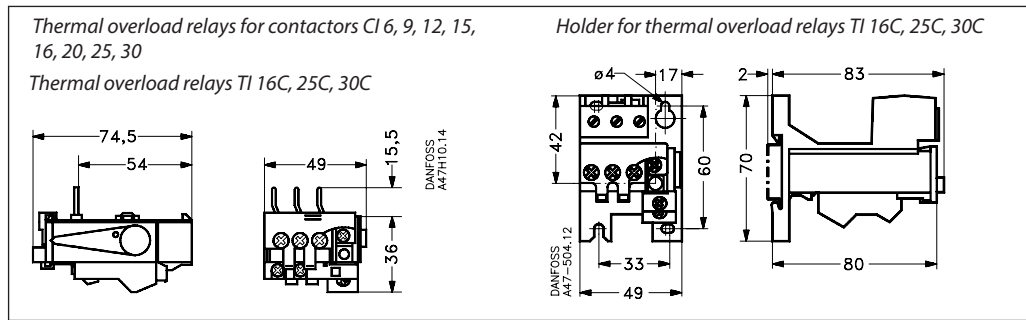
3-phase overload

- 1) Measure overload current
- 2) Find the overload factor (x) by dividing the measured value by the set value of the thermal overload relay (motor full load current).
- 3) Find (x) on the horizontal axis and follow a line vertically up until it intersects the upper curve.
- 4) From the intersection point, follow a horizontal line to the left and read off on the vertical axis the time that will elapse before the thermal overload relay cuts out the motor.

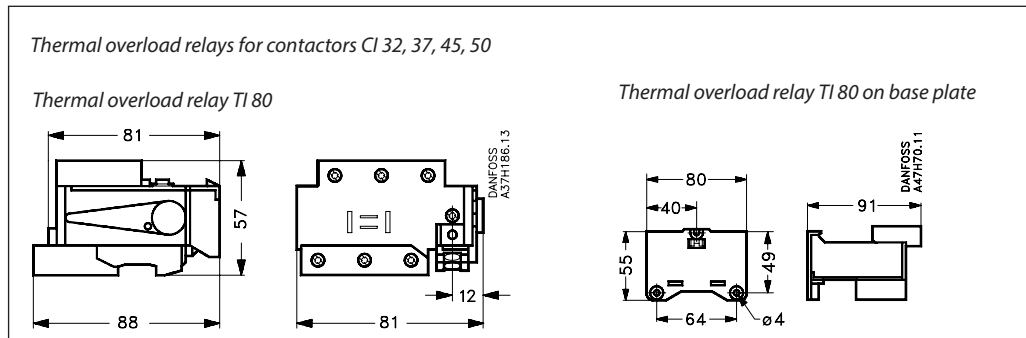
Asymmetric load tripping

- 1) Measure the current the motor draws from one of the intact phases.
- 2) Find the overload factor (x) by dividing the measured value by the maximum scale value of the thermal overload relay.
- 3) Find (x) on the horizontal axis and follow a line vertically up until it intersects the lower curve.
- 4) From the intersection point, follow a horizontal line to the left and read off on the vertical axis the time that will elapse before the thermal overload relay switch off the motor.

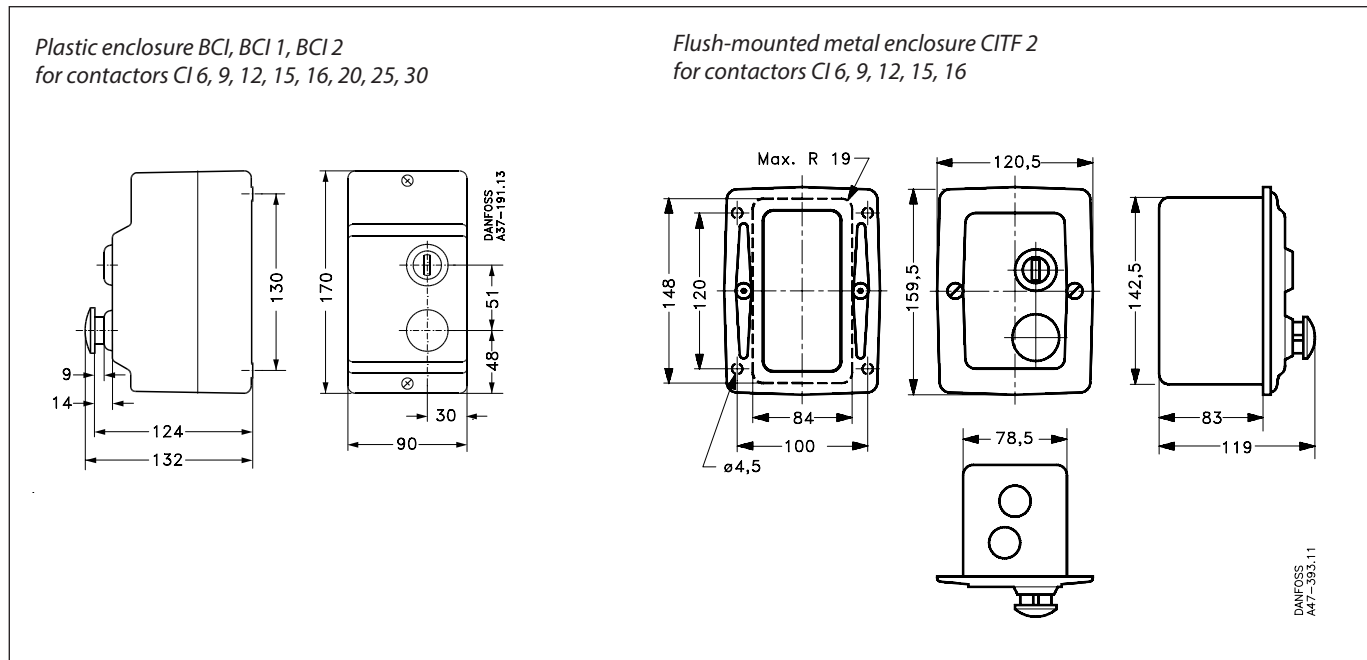
Dimensions
Thermal overload relays
TI 16C-30C



Dimensions
Thermal overload relays
TI 80



Enclosures



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